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EXAMINER	
WEINSTEIN, LEONARD J	
ART UNIT	PAPER NUMBER
3746	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/728,753	MURATA, SHIGERU	
	Examiner	Art Unit	
	Leonard J. Weinstein	3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 November 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 5-9 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 5-9 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to the amendment of November 23, 2007. In making the below rejections and/or objections the examiner has considered and addressed each of the applicant's arguments.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 23, 2007 has been entered.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a) because they fail to show element 34a as described in the specification as "sub ring 34 having an annular threaded section 34a in the inner surface thereof" (pg. 10 ll. 5-6 – version of specification showing changes 4/30/07). Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency.

Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. In considering applicant's amendment to claim 5, the version of the specification submitted in the amendment of April 20, 2007 was further considered. The amendment filed April 20, 2007 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows:

- Page 9 lines 10-12 – "An annular threaded section with which a sub ring is fixedly engaged via threads is formed on an outer end portion of the internal flange 32b." This adds a structural component to flange 32b and sub ring 34 that was not disclosed or supported by the specification of the original disclosure of December 8, 2003. From the original disclosure and figure 1, showing 18a as a threaded connection between element 18 and inner surface of element 34 and no such connection between element 30 and an outer surface of element 34, it is clear element 34 has a flat surface along its outer circumference which would allow it to rotate relative to a main ring 30.

- Page 9 lines 18-20 and 21-26 – "the main ring 30 is free to move rotationally relative to the main body block 2 until it is fastened tightly by the sub ring." It is noted by the examiner that in the original disclosure a pilot valve was free to move rotationally relative to a main body block until fastened by sub ring element 34. The pilot valve assembly cannot be secured to a main body block until a main ring 30 is connected to a main body block by threaded connection between these elements. The main ring, once threaded on the main block, is not free to rotate relative to the main body block. The main ring will not rotate at this point unless acted upon by an external force. The rotation of sub ring 34 would no impact on whether a main ring 30 could or could not be connected to a main body block. The main ring and pilot valve assembly are separate components, and it is possible to attach a main ring 30 to the main body block without a pilot valve included in an assembly. Taken by itself, a pilot valve could not connect or come to rest on any surface of the main body block and thus be secured to the main body block. The instant invention cannot be assembled with a pilot valve assembly, without first attaching the pilot 17, 18 to the main ring. The action of rotating a sub-ring 34 brings the top surface, an outermost annular section of a pilot valve assembly, in contact with the flange 32b of the main ring 30 which is behind the surface of the pilot valve it comes to abut. It is understood by the examiner that assembling the instant invention would require a main ring, with a pilot valve block disposed within the inner circumference of main ring (32a), to be connected to a main block, then a pilot valve, free to rotate relative to both a main body block and a main ring, is rotated to align ports 16a with channels in a piping block 26, and finally a sub ring is rotated to secure a pilot valve

(in correct alignment for ports 16a and 24a) to the main ring. At this point if the main ring has not been threaded completely onto a main body block, it is capable rotation toward the main body block if acted upon by an external force. Were this to occur the pilot valve would rotate with it, and ports 16a would not be in alignment with channels 24 of piping block 26. Therefore at the point where the pilot valve has been secured to a main ring by rotating a sub ring, the main ring and pilot valve block rotate as a single integrated body relative to a main body block. The rotation of element 34 does not preclude main ring 30 from further rotation and thus being "free to move rotationally relative to the main body block 2 until it is fastened tightly by the sub ring." Rotating a sub ring 34 actually moves a pilot valve assembly away from a main body block to bring the pilot valve block into abutment with flange portion 32b of a main ring, as disclosed in the original disclosure of December 8, 2003 on page 9 lines 16-25 (pg 10 ll. 14-22 of mark up version).

It also noted by the examiner that the recitation of "When, these annular threaded sections are tightly engaged with each other the pilot assembly block 17,18 is fixedly secured t" the main body block via the sub ring 34" (pg. 10 ll. 5-8 of mark up version) can both be considered as supported and not supported by the specification. The statement can be read to imply that a sub ring makes a direct physical connection between a main block and pilot valve assembly that renders the pilot valve assembly "fixedly secured." This interpretation is not support by the specification however claims have been directed to an arrangement with the features as described. More broadly, and the way which support is provided by the specification, the statement can be interpreted to mean that once the step of rotating a sub ring is completed, a pilot valve can no longer rotate relative first to a main ring and

subsequently a main block. Thus the pilot valve is in fixed in a position relative to a main block. However it is noted by the examiner that with this interpretation, it would be incorrect to assume that the rotation of the sub ring necessarily caused an exclusive and direct physical engagement between the pilot valve and the main block. It is always the case that a pilot valve has a physical attachment, through contact with a main ring which is in direct engagement to the main block, when the connection between a main ring and main block is made. However in this state it is possible that a pilot valve is not "pressed against" a main block because the rotation of a sub ring brings the pilot valve into contact with flange 32b of the main ring. This point is made in recognition that if the examiner was to remain silent as to this recitation of the specification, the applicant may choose to use this silence to argue against the determination of new matter which as been made above. Therefore the examiner has made it clear that an argument by the applicant, stating it would be a contradiction to determine and object to the subject matter identified as new matter without a similar determination and objection to the disclosure on page 10 lines 5-8 (mark up version - 4/20/2007), would be in error.

All page and line references refer to the version of the specification showing changes submitted April 30, 2007 and were incorporated into replacement specification provided on the same date.

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 5-9 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The limitation of "by threading said sub ring onto said pilot valve assembly block... said pilot valve block is pressed against and thus fixedly secured to main body block." The examiner agrees that the action of threading a sub ring onto a pilot valve does fixedly secure the pilot valve block to a main body block but this action is not what causes a pilot valve block to be pressed against the main body. By applicant's own disclosure rotating a sub ring 34 actually moves a pilot valve assembly away from a main body block to bring the pilot valve block into abutment with flange portion 32b of a main ring, as disclosed in the original disclosure of December 8, 2003 on page 9 lines 16-25 (pg 10 ll. 14-22 of mark up version). It is the rotation of main ring 30 which causes the pilot valve block come into abutment with a main body block. The examiner notes that is possible that if the threaded connection between a sub ring and a pilot valve block was made significantly tight enough, the pilot valve could be moved from a main body block enough that only the main ring 30 applied an "axial force" on a main body block.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claims 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Steck et al. 6,402,486 in view of Taga US 2002/0093144 A1, further in view of Kutz 5,749,690. Steck teaches all the limitations as claimed for a reciprocating fluid transfer pump, as shown in figures 1-4, including: (claim 5) a main body block 16 including a fluid supply passage 24a and a fluid discharge passage 24b, a center rod 64 inserted in the main body block 16 and being capable of reciprocating movement relative to the main body block 16, a barrier membrane 60a attached to an end portion of the center rod 62a, the barrier membrane 60a and the main body block 16 defining a fluid delivering chamber 19 and a driving chamber 17 such that a fluid, once having suctioned into the fluid delivering chamber 19, is discharged by expanding and contracting the barrier membrane 60a, a main ring 20a engaged via threads (col. 10 ll. 41-43) with an annular wall 83 formed in the main body block 16, the main ring 20a being movable rotationally relative to the main body block 16 to insert the annular wall 83 of the main body block 16 into an annular space, as shown in figure 4 and defined by the space between elements 84 and 86 and further defined by element 76, by an axially extending outer annular 86 portion of the main ring 20a such that a peripheral portion of the barrier membrane 60a is clamped, via elements 80 and 82, and thus fixedly secured to the main body block 16, and a pilot valve assembly block 30 fixedly secured to the main body block 16 by engaging the main

ring 20a with the main body block 16, the pilot valve assembly block 30 having a pilot valve 46 integrated therein as one body for detecting reciprocating motion of the center rod 64, and a sub ring 22a engaged via a thread with a threaded section 148 of the pilot valve assembly block 30 such that the pilot valve assembly 30 fixedly secured to the main body 16 with the aid of the main ring 20a; (claim 6) a change-over valve assembly block 14 having a change-over valve 90 integrated therein as one body for switching movable directions of the center rod 64, the change-over valve assembly block 14 being fixedly secured to the main body block 16, wherein the change-over valve assembly block 14 and the pilot valve assembly block 30 are interconnected via a piping block 34 defining flow channels for connecting respective ports of the change-over valve 90 with respective ports of the pilot valve 30 (col. 13 ll. 57-64); (claim 7) a piping block 14 having connectors 198 (col. 17 ll. 30-45) for providing connections from the respective ports, elements 230, 232, 234, 236, 238 to respective flow channels, elements 220, 240, 242, and 244 of the piping block 14; (claim 8) a piping block 14 being secured fixedly to the main body block 16 via the pilot valve assembly block 30; (claim 9) and a second barrier membrane 60b attached to a second end portion 62b of the center rod 64.

Steck fails to teach the following limitations that are taught by Taga (in the embodiment of figure 13, for a connection wherein a main ring 80d is engaged via threads with an annular wall 57d' formed in a main body block 50d, said main ring 80d being movable rotationally relative to said main body block 50d to insert the annular wall 57d' of said main body block 50d into an annular space, as defined by space in between element 87d and 10d, defined between an axially extending outer annular portion 87d' of said main ring 80d and an axially extending inner annular portion 10d of said main ring 80d. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify a connection for a casing

for a reciprocating dual diaphragm pump, so that an outer casing or main ring is provided with an inner annular wall extending from the outer casing or main ring towards a main block of the pump to form a space between an outer annular the surface of outer casing or main ring which receives an annular wall extending from a main block, in order to make a fluid tight seal which prevents a fluid leakage when creep occurs at a threaded connection between two members (Taga - ¶ 0017).

A combination of Steck and Taga fails to teach the following limitations that are taught by Kutz for a valve assembly 35 having a sub ring 11 engaged via thread 22 with a threaded section 31 of a valve assembly 35 such that threading a sub ring 11 onto the valve assembly 35, an axial force is applied by a sub ring 11 to a main ring 30 to prevent rotation valve assembly 35, relative to element 33. It would have been obvious to one having ordinary skill in the art at the time of the invention to provided sub ring on a valve assembly that when rotated by hand, makes a tight and secure connection between a valve and a subassembly, in order to secure a valve assembly without the use of a tool (Kutz - col. 1 ll. 21-23).

Response to Arguments

10. Applicant's arguments with respect to claims 5-9 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonard J. Weinstein whose telephone number is (571) 272-9961. The examiner can normally be reached on Monday - Thursday 7:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Karmer can be reached on (571) 272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LJW

DEVON C. KARMER
PATENT EXAMINER

1/7/08